Blood Sugar Secrets for Health and Longevity

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Blood Sugar Secrets for Health and Longevity
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Preface

Only 10,000 years ago the sweetest fruit was only about as sweet as today's carrot, according to Harvard professor Daniel Lieberman in his new book, The Story of the Human Body. As a result, we are just not genetically able to handle the hybridized fruits and starches that have all gotten sweeter and sweeter.

Processed foods deliver sugar and indigestible fats into our blood and liver, depleting the body of essential good fats and overwhelming the body with toxic amounts of sugar to do any body good.

At the same time, a dopamine-fueled culture of “I gotta have it now” prompts us to be always at the beck and call of our latest craving, creating the perfect setup for all kinds of addictions, the most widespread of which is probably the addiction to sugar.

You may be well aware of the pre-diabetes epidemic that experts say will affect all adult Americans in the next ten years, but I wonder if you are really aware of the hidden sugars in many so-called "health foods." My Blood Sugar Awareness Video Quiz, along with this eBook, are attempts to raise your blood sugar awareness and inspire you to stave off some of the havoc that sugar wreaks on the brain, skin, cells, heart, gut, joints and more. Most importantly, I’ll be teaching you how to take responsibility for your blood sugar health in the short and long term.

I encourage you to read this book to arm yourself with the knowledge you need to successfully navigate the blood sugar terrain.

In health,
John Douillard
Did you know at least one-third of Americans are at imminent risk of becoming diabetic?

If you experience food cravings, mood swings, weight gain, irritability and/or fatigue, you might unknowingly be at risk. The scary truth is, even a “healthy” diet can put you in the danger zone.

You may have heard that diabetes is climbing at an alarming rate. But staying out of the diabetic range is not enough—high blood sugar, even within the so-called “normal range,” has been shown to increase the risk of dying of a cardiovascular event by 40%, as well as chronic issues related to heart, brain, kidney, nervous system and cognitive health (1).

Join me as I delve into why and how this silent killer develops, and why most people that already have it don’t know it. Most importantly, I will offer real-life strategies to support healthy blood sugar levels.

Blood Sugar 101
It’s important to understand why and how blood sugar rises, and how common, even “healthy” diets, can prompt the progression of pre-diabetes:

1. As sugars—even “natural sugars”—and simple carbohydrates are digested, they force the pancreas to produce excess insulin, which is needed to escort the sugars out of the bloodstream and into the cells.

2. Over time, when the insulin levels are driven up again and again several times a day, the pancreas becomes worn out and the cells can become resistant to taking in any more sugar.

3. Excess sugar in the blood, unable to be absorbed by the cells, keeps the blood sugar unnaturally high. It lingers there until the insulin stores it as fat, often (but not always) causing abdominal fat, weight gain and unhealthy cholesterol.

4. Excess blood sugar also attaches to proteins that may damage or thicken the arterial wall, directly increasing the risk of cardiovascular and circulation complications (1).
Most People Who Have Pre-Diabetes Don’t Know It

Here are some staggering statistics: while one third of the American population currently qualifies as Pre-Diabetic, an incredible 90% of them do not know it (3).

Moreover, many of them maintain what would commonly be considered a “healthy” diet.

So how can a condition with such potentially far-reaching complications go unnoticed? Perhaps it has to do with the fact that pre-diabetes can cause symptoms in almost every system in the body.

Here are just some of the health risks associated with pre-diabetes (2):

- Accelerated Aging
- Acne
- Alzheimer's Disease
- Anxiety
- Cancer
- Constipation
- Depression
- Early Puberty
- Enlarged Male Breasts
- Erectile Dysfunction
- Fatigue
- Food Cravings
- Heart Disease
- Heartburn GERD
- High Cholesterol
- High Level of Stress
- Hormones
- High Triglycerides
- Hypertension
- Increased Blood Coagulation
- Inflammation
- Irritability
- Low Vitamin Levels
- Male Pattern Baldness
- Mental Fuzziness
- Mood Swings
- Need for Stimulants
- Polycystic Ovarian Syndrome
- Poor Circulation
- Premenstrual Syndrome
- Sleep Apnea
- Sleep Disorders
- Stiff Blood Vessel

Sugar Has Been Around for Ages – Why is it Posing a Threat Now?

Natural foods like energy bars, chai tea lattes, most yogurt, natural chips, whole wheat breads, dried fruits and even fresh squeezed fruit juices all deliver a blood sugar surge that may contribute to pre-diabetes.

There is more than one reason for the epidemic climb in blood sugar, and of course, simply eating more of the sweet stuff is a big part of the equation. But the fact is that we don’t always know what we are eating, and that is largely due to the rise in popularity of processed and refined foods.

While many of us equate the idea of “processed foods” with a certain kind of poor quality “junk food,” many of the items at the health foods store are far from the natural state of the ingredients they were made from.

Jack Lalaine told me once a long time ago, "I never eat anything that has a wrapper." - Prophetic advice from a nutrition icon. Just think, foods with wrappers are generally processed and then wrapped to help preserve them.

The human body wasn’t designed to ingest refined and processed foods. The more refined and processed the food, the quicker it will enter the bloodstream.
Natural Sweeteners – Are They Really “Natural?”
So called “natural” sweeteners, like molasses, pure maple syrup, agave, date and beet sugars are all concentrates from the whole plant, and as such do not exist in nature. It is hard to refute the logic that if we were meant to eat refined carbs and concentrated sugars, they would exist in nature in that form. Honey and stevia might be the only sweeteners that naturally occur in nature. I am a bee-keeper and love my bees, but I have to wonder if honey is actually meant for humans. With about 10,000 – 20,000 stingers protecting each hive, it makes you wonder if nature intended for us to have any!

Moreover, the bees gather the nectar from thousands of flowers to manufacture the honey, so it really is a processed concentrate. I do think that raw honey has value for humans as a medicine and in extreme moderation as a sweet, but never for cooking or baking according to Ayurveda, or as the “healthy sweetener” it is touted as today.

These sweeteners, along with simple carbs like packaged pastas, white rice, corn, potatoes, most breads, refined grains and most cereals, quickly break down into sugar and enter the bloodstream too fast for the body to safely handle them.

Gulping the Sweet Stuff Down
One of the most common and efficient ways to deliver a massive sugar surge to the body is to drink a sweet beverage. Many folks try “healthier” beverages which often just package sugar with a healthy-looking label and marketing. Let’s look at exactly how much of the sweet stuff is packed into the drinks that “keep us going.”

- **Simply drinking a 12 ounce Coke is the same as swallowing 10 teaspoons of table sugar (39g of sugar)** (1). Imagine asking your 8 year old to sit at the table and swallow 10 teaspoons of sugar. If a child has a Coke and a package of licorice (57g of sugar) at the movies, that’s pushing 100g of sugar in one sitting with no activity to help the body process it – and licorice is actually one of the better candies. One box of Dots delivers 111g of sugar!

- **One 12 oz can of Hansen’s Cherry Vanilla Crème Natural Soda contains 43 grams of sugar! – more than Coke!**

- **A bottle of Vitamin Water - considered a healthy beverage - has 31g of sugar** – it’s a jolt to anyone’s brain chemistry and blood sugar.

- **8 ounces of Tazo iced tea contains 19g of sugar** – but who drinks just 8 ounces?

- **The 12oz Starbucks Grand Iced Green Tea Latte has 35g of sugar** – that’s more like it!
• **8 ounces of orange juice: out of 27 grams of carbohydrate, 24 of them are sugar.** It’s almost all SUGAR!

• **8 ounces of lemonade: out of 30 grams of carbs, 28 of them are sugar.** We knew that lemonade wasn’t about the lemons!

• **100% Pomegranate (8oz): 36 grams of carbs, 31 grams of sugar.** Surprising, right? It’s still a ton of sugar.

**Note:** When you squeeze the juice out of a fruit, the fiber that slows down the absorption of the sugar is removed, and what you are left with is a juice of mostly sugar!

**More Hidden Sugars**
Soda pop, ice cream and candy are obvious sugar injections, but how many little injections of sugar are we getting all day? Chips, even the natural ones, break down extremely quickly into carbs. Cultures that ate a lot of potatoes were typically northern and always ate a big piece of meat with the potatoes to balance the blood sugar surge. Americans have chips with soda – Really!

Remember, simple carbohydrates in bread and other refined grains turn into sugars and behave the same way in the bloodstream.

**Bread**

- **One slice of organic whole wheat bread has 28 grams of carbs, 3 grams of sugar, with a glycemic index of 73.** That’s more than table sugar, which has a glycemic index of 59.

- **One slice of sprouted grain and seed bread (requires refrigeration) has 14 grams of carbs, 0 grams of sugar, and a glycemic index of 37.** With no major blood sugar impact, this is definitely the preferable choice!

**Desserts**

- **Organic wild berry low fat yogurt smoothie (6oz) has 23 grams of carbs, 23 grams of sugar.**

- **Ben and Jerry’s Peach Cobbler ice cream (1/2 pint) has 28 grams of carbs, 26 grams of sugar.**

**Take a Fresh Look at Your Favorite Healthy Snack**
Check out the label on your favorite nutrition bar and you will find it loaded with sugars. Just because they are date sugars, molasses, honey, dried mangos, raisins or fruit concentrates *doesn’t mean they are healthy.* They are still an overwhelming blast to the pancreas and blood sugar.
Take a bag of dried mango – a good example because it has a medium amount of sugar compared to most fruits. Many of my patients used to go through one of these bags in a day, or even one sitting:

- **100 grams of a ripe mango has 13.7 grams of sugar. 100 grams of the dried mango fruit—the same amount of mango—has 76 grams of sugar.**

**Note:** Drying fruits concentrates their sugar content, dramatically altering their behavior in the body. The body was not meant to thrive on concentrates!

*Please start looking at the labels of the health foods you buy. Read how many grams of sugar and total carbs are in each product. You might be surprised!*

**Warning: Check the serving size!**

Often the serving size is very small, much smaller than the amount in the container you are purchasing. Because of this, the nutritional facts can be misleading. A bottle of juice, for example, often amounts to 16 ounces, but the serving size is 8 ounces. The amount of sugar in the whole bottle in this case is really double the number on the label.

**The Real Natural Sugars**

In nature, the carbohydrates we are meant to ingest and thrive on are **vegetables** - lots of vegetables.

The sugars in veggies are protected by the vegetable fiber and are delivered into the bloodstream in a slow and steady fashion. If we compare ourselves to the gorilla, the animal who has the most similar digestive system to humans, we will notice that they eat half their body weight in veggies per day. They do eat small amounts of meat—and the grains they get are raw, with all of the plant fiber intact.

I don’t think we always have to eat like gorillas but I believe the amount of veggies they eat per day puts us to shame. To protect yourself from pre-diabetes and the many risks associated with it, you simply cannot eat enough veggies. That doesn’t mean that real whole grains or some meat is bad - it is balance that the body likes.
Your Diet Is Your Best Defense
The best strategy to support healthy blood sugar levels is with a diet free of simple and refined sugars. Try to avoid all sugars, sweeteners and the high-sugar-content mentioned in this article.

If you are going to eat shorter chain—or higher glycemic index—foods such as corn, white rice, wheat or potatoes - try to have them in the natural state rather than a refined version like corn or potato chips, or non-sprouted breads. Also eat these carbs with a protein source so they are not just un-opposed sugars entering your bloodstream.

Also try to limit your carbohydrate intake at night when the digestive system is weaker.

Try to make three meals a day count. Make them balanced with a starch, like a whole grain, lots of green veggies, and a protein source such as fish, eggs, tempeh, nuts, seeds or meats. It’s all about whole unprocessed foods and making each meal balanced, three times a day.

Choose Non-GMO and organic when possible.

Stay Tuned: In the next chapter, I will discuss the importance of testing for pre-diabetes, and tell you about a pre-diabetes self-screen that anyone can do at home.

For more info on how to balance blood sugar, check out my 3-Season Diet Book.
You may not know that your annual blood test could easily miss a pre-diabetic condition.

I have many patients who come in to see me with no physical complaints and, once screened, are revealed to be either pre-diabetic or even diabetic!

This is a huge oversight in the medical system. That’s why it’s so important to regularly screen yourself and your family for rising blood sugars on a regular basis—even if you eat healthy and exercise regularly.

As I mentioned in the previous chapter, rising blood sugar, even within the “normal range,” has been shown to increase the risk of dying of a cardiovascular event by 40%.

Join me as I walk you through the simple process of self-screening your blood sugar at home.

**The Problem with Current Diabetes and Pre-Diabetes Test Ranges**

While diabetes is climbing at an alarming rate, the blood sugar ranges that are used to screen for pre-diabetes are outdated, and many of those at risk are slipping through the cracks. Today, close to 90 million people have pre-diabetes and 90% of them do not know it, according to the Centers for Disease Control. (4)

The “normal” ranges for fasting blood sugar — that’s your blood sugar first thing in the morning before breakfast — have been between 80-120mg/dL for many years. Once the blood sugar rises above 125mg/dL, you are diagnosed with diabetes. Over 110mg/dL, you are considered “pre-diabetic”.

Although more and more experts have assigned fasting blood sugar over 100mg/dL as pre-diabetic, other labs and doctors still don’t screen for pre-diabetes until you are over 110mg/dL.

The problem is that the risk for most degenerative and cardiovascular issues rises significantly with fasting blood sugar above 85mg/dL. (6)

One study looked at the fasting blood sugar levels of nearly 2,000 men over a 22 year period. Men with fasting glucose levels over 85 mg/dL had a 40% increased risk of dying from a heart related concern. (6)
The same study indicated that with fasting blood sugar between 85-90mg/dL, there is a 20% increased risk of dying of a cardiovascular event; from 90-95mg/dL there is another 20% risk of dying of a similar event.

Yet the medical establishment still calls fasting blood sugar under 99mg/dL "safe," and there are no safety nets or alarm bells of pre-diabetes until you reach 100 or 110mg/dL. We need to start changing the diet when the fasting sugar starts creeping above 85mg/dL.

**Cause for Concern – Some Blood Sugar Statistics**

- One team of researchers found that the risk of developing diabetes itself was increased more than seven-fold in people with fasting glucose levels of 105-109 mg/dL, compared to people with fasting glucose levels of less than 85 mg/dL. (5)

- An analysis of 1,800 maturing individuals revealed that poor coronary artery health rates were the same in both diabetes and pre-diabetes. (5)

- A similar analysis of 33,230 men found that high glucose within the "normal" range was independently associated with a 38% increase in deaths from digestive tract cancers. (5)

- In another study of 46,000 non-diabetic middle aged men, over 80% of them had fasting blood sugars above 85mg/dL. (7)

**The Truly Safe Range**

It can take years for the fasting blood sugars to creep up from between 70-85mg/dL to 110 or above.

To stay out of the danger zone for risks of diabetes and associated degenerative health concerns, the truly safe range for blood sugar is between 70-85mg/dL.

**Dangers of After Meal Blood Sugar Spikes**

Studies also show that the dangers of blood sugar spiking after a meal may be as harmful as fasting blood sugars above 85mg/dL. Blood sugars that rise over 21 mg/dL above normal (140mg/dL), may increase the risk of heart attack by 58% and cardiac death by 26%. (9) Healthy blood sugar two hours after a meal should be lower than 125mg/dL.

**A Gaping Hole in Medicine**

I have been shocked by the number of patients who come in to see me, who consider themselves healthy eaters and turn out to be pre-diabetic.
This is a huge oversight in how we screen the public for the risk of diabetes and associated degenerative disease. Basically, our current system waits until you are on the brink of type II (previously called “adult onset”—no longer the case now that younger and younger age groups are affected) diabetes before anything is done.

My goal is to teach you a simple home screening strategy, so that if you notice that fasting blood sugar start to creep up, you can take action with the necessary dietary changes to bring it back into the truly “safe range” between 70-85mg/dL.

**Home Screening - Your Best Defense**

Nowadays a blood sugar monitoring calculator can be purchased from $20-50, including test strips.

The simplest test is called a Fasting Glucose Test. This is a blood sugar sample taken when you first wake up in the morning. The result is a great screening number because the blood sugar tends to be higher in the morning, and this is one of the first indicators of rising blood sugar.

Use the following glucose ranges as a reference for your test results.

<table>
<thead>
<tr>
<th>Glucose Ranges</th>
<th>Description</th>
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<tr>
<td>65-99mg/dL</td>
<td>Conventionally considered normal fasting glucose range.</td>
</tr>
<tr>
<td><strong>80-85mg/dL</strong></td>
<td><strong>Best fasting glucose range.</strong></td>
</tr>
<tr>
<td>90-100mg/dL</td>
<td>Increased risk.</td>
</tr>
<tr>
<td>100-110mg/dL</td>
<td>Early pre-diabetic fasting glucose range.</td>
</tr>
<tr>
<td>110-125mg/dL</td>
<td>Pre-diabetic fasting glucose range (<em>1 out of 3 Americans falls into this range</em>).</td>
</tr>
<tr>
<td>above 126mg/dL</td>
<td>Diabetic fasting glucose range.</td>
</tr>
<tr>
<td>below 125mg/dL</td>
<td>Best two hour after meal glucose.</td>
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Taking Action

While pre-diabetes is treatable in many cases with extreme lifestyle and dietary changes, it makes sense to be aware of this monster way before it arrives. By testing the fasting blood sugar regularly, you can detect any blood sugar issues early and make simple dietary adjustments to optimize your blood sugar.

Once you’ve made dietary adjustments, regularly testing your first morning glucose is a great way to evaluate the efficacy of those changes. Avoid the simple sugars, any sweeteners, fruits, and short chain carbohydrates like potatoes, corn, and white rice for a few days, weeks or months to bring those numbers back into the low eighties.

Soon, by eating more whole, non-processed foods and avoiding the hidden sugars you will happily watch your fasting blood sugar stabilize.

To Balance Blood Sugar, Avoid:
- Simple sugars
- Sweeteners
- Fruits
- Potatoes
- Corn
- White rice
Having a sweet tooth is normal, right? Almost every kid has one, and as we mature we learn to control it. Don’t we?

While some people do a good job managing their sugar intake, many others have fallen prey to a culture and food industry that thrives off of the sweet taste.

Even health-conscious consumers, who spend a lot of time and resources making sure their diet is clean, often struggle with sugar addiction in unexpected ways. Though they aren’t the usual culprits, “health food” treats - including dried fruit – can also perpetuate an addiction to the sweet taste.

Please join me as I take you on a journey explaining how our culture’s sugar addiction has been renamed, relabeled, and hidden behind even the “healthiest” of foods – and its devastating impact on our health.

**Six Tastes – But We Eat Mostly One!**
The sweet taste is not a bad thing. In fact, according to Ayurveda there are six tastes that are all to be taken at each meal. A “balanced meal” is determined by the inclusion of all six tastes: sweet, sour and salty—which our culture loves—and bitter, pungent and astringent, which we in the west seem to avoid. According to Ayurveda, eating excess amounts of sweet, sour and salty foods causes the accumulation of *kapha*, which is directly linked to weight gain, swelling, heart health issues and more.

*Kapha* is a principle in nature made up of the elements earth and water. It is heavy, congestive and sticky. Foods like sweets, chips and pickles have these heavy properties that can create congestion and stagnation in the body, often leading to congestive disorders like obesity, diabetes and heart disease.
Conversely, the bitter taste found in leafy greens, the pungent taste found in ginger and spices, and the astringent taste found in cucumbers and pomegranates all antidote these kapha conditions.

The “I Gotta Have It” Hormone
Why are sweet cravings so much more common than cravings for the bitter taste of leafy greens? The answer lies in your brain: the taste of sweet activates dopamine receptors in the brain, which are responsible for most addictions.

Dopamine is the "I gotta have it" hormone. When you see that chocolate cake or other favorite sweet, dopamine levels rise and strengthen your desire for that sweet.

It really doesn’t matter if it is a refined sugar or an “all-natural” molasses, agave, honey or date sugar product—as far as the brain is concerned, it is all the same. While it is true that the natural sugars have more fiber and B vitamins to help the body cope with the sweet explosion, the brain makes quick use of it regardless of the source, and the pancreatic insulin will be challenged either way to quickly move that sugar surge out of the blood.

Fructose – A Safer Alternative?
Many “natural sweeteners” on the market today contain fructose as the sweet factor. Agave, for example, has a lower glycemic index than table sugar but is still a highly processed product that contains 90% fructose, compared to high fructose corn syrup, which is only 35-55% fructose.

Fructose may not spike insulin like table sugar but it is still linked to blood sugar, weight and cholesterol concerns.

Fructose is metabolized in the liver and quickly converted into belly fat and cholesterol, and not used by the body for energy (in nature, bears gorge on fruits in the late summer in effort to begin storing the fat they will need through the winter).

Fructose is also a challenge for the liver to break down and, in excess, creates toxic metabolic waste products.

The problem is not fructose itself, but in the concentration. The fructose content of fruits is very small compared to the amount we ingest in the form of concentrated sweeteners.

Today, the number one source of calories in the US is high fructose corn syrup.

<table>
<thead>
<tr>
<th>Fructose-Driven Sweeteners</th>
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<tr>
<td>Honey: 47% fructose</td>
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<tr>
<td>Agave: 70-90% fructose</td>
</tr>
<tr>
<td>High Fructose Corn Syrup: 35-55% fructose</td>
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Insulin Resistance: The Not-So-Sweet Truth
All sweeteners, no matter the source, will spike insulin levels and raise the blood sugar much higher than we
were designed to handle, as well as strain the liver, which is intimately involved in sucrose and fructose metabolism.

Excess sugar also overwhelms the muscle cells’ ability to use the sugar, and they eventually stop responding to the signals of insulin. This leads to a condition called *insulin resistance*. As a result, the levels of sugar in the blood stay dangerously high for an extended period of time.

**Sugar and Wrinkles**
The excess sugar is converted into fat and often stored around the belly, elevating the levels of cholesterol. Excess glucose also sticks to proteins in the blood in a degenerative process called *glycation*.

Glycation is the process of sugar molecules attaching themselves to proteins in the body. It causes damage to two very important proteins: collagen and elastin, which are responsible for the health and elasticity of the skin. Yes this leads to wrinkles, but more importantly, the health of the skin that lines the arteries, heart, gut and lungs is compromised.

**Here is a list of the most common sweeteners which are found on the labels of many foods. I suggest that you reduce or eliminate:**

- Agave
- Barley Malt
- Brown sugar
- Brown Rice Syrup
- Coconut Sugar
- Corn sweetener
- Corn syrup
- Date sugar
- Dextrose
- Fructose
- Fruit-juice Concentrate
- Glucose
- High-Fructose Corn Syrup (HFCS)
- Honey
- Invert Sugar
- Lactose
- Maltose
- Malt syrup
- Maple Syrup
- Molasses
- Raw sugar (Turbinado, Muscavado, and Demerara)
- Sucrose
- Syrup
Artificial Sugar Risks
In an attempt to appease the insatiable desire for sweet, the food industry has created artificial sweets that are hundreds of times sweeter than sugar, but calorie free. There are many issues with these artificial sweeteners:

1. They send a sweet taste to the brain and never deliver any real energy. This drives an even stronger message of hunger and desire for sweet.
2. Most are made of excitotoxins that over-stimulate, exhaust and deplete the nervous system.
3. Some are made of small amounts of known carcinogens.
4. Artificial sweeteners have been found to actually increase weight gain, as they disturb metabolic hormones like leptin and insulin.

The Big Three To Avoid

**Saccharin** – also known as “Sweet’N Low”: at very high doses causes bladder cancer in rats. Though this has never been reproduced in humans, it still carries a health warning on the label. It is made from sulfonamides, which are known allergens and may cause severe allergic reaction.

**Aspartame** – also known as “Nutrasweet”, or “Equal”: of the 166 studies done on aspartame, almost half of them have funding ties that trace back to the manufacturer. Of the studies that were done independently, 100% of them found health issues related to aspartame. Aspartame contains about 10 percent methanol by weight, also known as wood alcohol, which is broken down into formaldehyde, and then formic acid, in your body. The body simply doesn’t have the mechanism to completely break this down. In the book, *Aspartame Disease*, Dr. Roberts reported that 80% of the food additive complaints to the FDA were from aspartame.

**Sucralose** – also known as “Splenda”: - maybe the most toxic of all, sucralose is made from a list of chemicals that will make your head spin: trityl chloride, acetic anhydride, hydrogen chloride, thionyl chloride, and methanol, in the presence of dimethylformamide, 4-methylmorpholine, toluene, methyl isobutyl ketone, acetic acid, benzyltrimethylammonium chloride, and sodium methoxide. The chlorine, a carcinogen, raises most of the health concerns.

Sugar Alcohol Sweeteners
Sugar Alcohols have recently become a popular sugar substitute. They are naturally occurring in some fruits and are generally about half as sweet as sugar, unlike the artificial sweeteners mentioned above. They are neither sugar nor alcohol, they just resemble their molecular structure. However, they are not completely absorbed in the digestive system and can cause gas, bloating and diarrhea. They do contain some calories and carbohydrates, and as such are not truly sugar-free.

Examples of Sugar Alcohols:
- Sorbitol
- Mannitol
- Xylitol
- Erythritol
- Isomalt
- Lactitol
- Hydrogenated starch hydrolysates (HSH)
“Diabetic Safe” Sweeteners
Sweeteners that are advertised as being “diabetic and hypoglycemic safe,” such as Stevia, Lo Han, and Xylitol (a sugar alcohol) are better in some ways because they have little or no effect on blood sugar.

However, if we realize that it is the addiction to the sweet taste that is the issue that is so chronically out of balance in our culture – then we can see that in at least one way, all sweeteners are accomplishing the same end - they give us our “sweet injection.”

In doing so, they dull our ability to sense and be satisfied by the sweet taste of vegetables, nuts, seeds, and grains.

Delaying the Inevitable
It is my belief that substituting sugar with any of the above sweeteners will only postpone the inevitable. With 1/3 of the adult population already pre-diabetic, and estimates claiming the entire population in the next decade, it might be time to break the sweet taste habit now.

Does that mean you can never have a sweet? No. If you know for a fact that your fasting blood sugars are good, you may indulge once in a while, but don’t make the sweet taste of sugar a regular part of your diet.

Take Precautions
Previously in this eBook, I cited research indicating the severe cardiovascular damage that takes place when the fasting blood sugar rises above 85ml/dL.

I encourage everyone to own a glucose meter and test your fasting blood sugars regularly, and make sure to adjust your sugar intake if that fasting number starts to rise.

If the fasting blood sugar creeps into the nineties, I suggest you avoid all sugars and reset your brain chemistry and taste buds to not desire sugar.

The (Perhaps Unexpected) Perks of Giving Up Sugar
Believe it or not, once you break the sugar habit, you will begin to taste the sweet flavors found in vegetables, nuts and whole grains and you won’t feel deprived.

Not having sugar in your life is not depressing.

In fact, many of the mood swings and emotional ups and downs are due to the rise and fall of blood sugar.
Breaking this habit actually frees you from the rollercoaster ride of sugar highs and lows, and delivers a more stable, calm, and naturally joyful experience of life. Once your meals are balanced with all 6 tastes and the cravings for the sweet taste have been eliminated, then not only stevia but other natural sweeteners like molasses, honey, and others can be used in moderation.

Small Steps to Sweet Freedom

1. **Increase greens in your diet.** We should aim for making your plate and each meal 50% veggies, 25% protein, and 25% whole grain or other healthy starch. Remember that the gorilla, who has a very similar digestive system to humans, eats half its weight in veggies each day. Choose organic and non-GMO foods when possible.

2. **Add pungent spices,** as well as bitter and astringent fruits and veggies to your diet. These will help balance blood sugar and offset your addiction to the sweet taste.

3. **Avoid processed foods** – they are everywhere. Fresh foods usually last just a few days, while processed foods last weeks or even months in the cupboard or fridge.

4. **Read labels.** If you don’t recognize the ingredient as something natural, skip it.

Look at your plate – is there:

- a protein
- a whole starch (whole grains, potato, corn, sprouted bread)
- a source of good fat
- and is the plate mostly green

Are you getting enough protein?
Vegetarians are at risk of not getting enough protein to keep blood sugars stable. Concerned this might be you?  
>>> Take the ‘Are You Protein Deficient’ Quiz

Do your best to include all 6 tastes at every meal:

- **sour** (lemon is a good one)
- **salty**
- **pungent** (spicy – basil, cinnamon, cumin, ginger, oregano, thyme, turmeric)
- **bitter** (leafy greens)
- **astringent** (beans, pomegranate seeds, cucumber)
- **sweet** (sweet vegetables such as carrots, beets and squashes, and grains such as millet and rice, to name a few!)
As I wrap up this series on blood sugar and pre-diabetes, it only seems fitting to end by discussing the good and the not so good of chocolate.

The research is compelling – there are so many studies touting the health benefits of cacao. Cacao is species of *theobroma*, Greek for "food of the gods," while others called it the "food of the devil" – suggesting there may be a “dark side” to chocolate.

Let’s dip into the very controversial issue of chocolate: is it for the gods, the devil, or just us regular folk?

This article also contains my conclusion to the entire pre-diabetes four-part series. After studying and exploring this newly documented cultural epidemic, I’ll tell you my final thoughts on what needs to be done to get us – and our addiction to the sweet taste – back on track.

What We Mean When We Say “Chocolate”
Chocolate, like coffee and tea, is loaded with over 300 powerful chemicals and antioxidants that deliver numerous health benefits, according to one report from the British Broadcasting Corporation.

*But let’s be clear from the start: not all chocolate is created equal. It is the cacao in the chocolate that delivers these health benefits, not the added milk or sugar.*

The benefits of cacao are generally noticeable in *dark chocolate*, with a cacao content of 70% or more. In this article, when I talk about the “benefits of chocolate,” I am referring to the constituents and effects of the cacao bean, not chocolate energy bars, cakes, or other chocolate treats.

Let’s take a look at some of the major constituents of chocolate.
The Power of Chocolate – Unpacking the Components

- As many of us know from experience, chocolate releases neurotransmitters called endorphins (also called “endogenous morphine”) in the brain, which can deliver feelings of euphoria and comfort - thus its role as a leading comfort food.

- Chocolate also contains a chemical called theobromine, (from the Greek Theobroma) which, interestingly, is both a stimulant and a sedative. It provides mental and physical relaxation while also delivering an energy boost similar to the effect of caffeine.

- Caffeine is also a key component. As we know, caffeine is a stimulant. You can read more about caffeine here: http://lifespa.com/coffee-the-good-the-bad-and-the-ayurvedic-perspective/.

- Chocolate is also rich in the amino acid tryptophan, which is a precursor to the neurotransmitter serotonin. Serotonin is known as the anti-depressant, anti-anxiety neurotransmitter. This chemical reaction takes place in the intestinal tract, which may explain in part why the "happy" effect of chocolate is so instant.

- It doesn’t end there. Chocolate is also rich in an even more potent neurotransmitter called phenylethylamine which has given chocolate nicknames like “the love drug” and "chocolate amphetamine". It is the phenylethylamine that may be responsible for the studies connecting chocolate to blood pressure and blood sugar changes, as well as the feeling of excitement and alertness that are often associated with the feeling of falling in love.

- Perhaps the most interesting chemical found in chocolate is called anandamide, which comes from the Sanskrit word ananda, meaning "bliss". This chemical is so fascinating in that it is very similar to THC (tetrahydrocannabinol), the active constituent in marijuana. Anandamide activates dopamine receptors in the brain - dopamine is a neurotransmitter that delivers a heightened sense of wellbeing or "high". It is sometimes called the "I've gotta have it" hormone because, when the brain becomes familiar with the effects of a dopamine-triggering substance like chocolate, seeing, smelling, or even thinking about that substance triggers the brain to send out the message, “I've gotta have it, now!”

- Chocolate also has two chemicals (N-linoleoyl ethanolamine and N-oleolethanolamine) that inhibit or slow the breakdown of the anandamide, allowing the bliss chemical to linger for hours.
Is it Addictive?
We can thank the entire rainbow of brain boosting chemicals listed above for the addictive nature of chocolate. Although, it should be mentioned that most of these chemicals exist in very small quantities, leading some researchers to believe the amounts are not sufficient to make a psychological difference.

On the other hand, many of us can likely attest to that *certain something* about chocolate that keeps us coming back for more.

The Research
While chocolate is most often thought of as a mood-altering comfort food, it is loaded with heart-healthy *flavonoids*. These flavonoids are the same constituents that give red wine, grapes, and berries their dark color and antioxidant effect. Interestingly, in all the studies I have seen, white chocolate—which is devoid of these flavonoids—offered none of the cardiovascular benefits seen in dark chocolate.

- In one study, 34,000 postmenopausal women who were put on a high flavonoid diet including chocolate had a 22% lower risk of developing coronary artery disease. (8)
- In another study, men who consumed high amounts of cacao (2.3g/day) had a 50% lower risk of developing cardiovascular disease compared to men who did not consume cacao. (9)
- Blood pressure and cholesterol levels were lowered with only 6g of dark chocolate a day. (10)
- In another study, 20 subjects with high blood pressure who ate 100g of dark chocolate saw a significant drop in blood pressure and a 10% drop in cholesterol. (11)

The Reality
Unfortunately, with one third of the American adult population qualifying as pre-diabetic, it is impossible for me to say that chocolate is a health food, even with all of its documented benefits. As a culture, we have over-indulged in the sweet taste, and we now need to address that excess by balancing the other side.

Sweet tastes are everywhere: in bread, pasta, rice, corn, fruit, fruit juice, and, of course, desserts. The bitter foods that offset the sweet taste are mostly found in bitter leafy green veggies and berries. The good news is that the cacao bean, much like the coffee bean, is actually bitter in nature. In this respect, both coffee and cacao are quite medicinal.

The question is: is this a medicine that we should be ingesting every day? And, is this a medicine that is appropriate for this culture at this time?
**Sugar Content in Chocolate**

Dark Chocolate (40g of 70% cacao)
- Calories 213
- Fat 16g
- Saturated fat 11g
- Sugar 12g

Milk Chocolate 40grams
- Calories 230
- Fat 15g
- Saturated fat 9g
- Sugar 20g

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**To Indulge, or Not to Indulge?**

Mostly, the cacao in dark chocolate is highly processed and loaded with sugar. While a higher cacao content indicates a lower sugar content, it still delivers quite a jolt of sugar and insulin to the bloodstream, heart and arteries.

If you do not have any pre-diabetic issues and your fasting first morning blood sugars are between 75-85mg/dL, then **one or two small pieces a week** of the darkest chocolate you can enjoy after a meal may be fine.

Remember, unlike coffee, the amounts of chocolate that were found to deliver the most therapeutic effects were very small. It doesn’t take much sugar to over-stimulate the nervous system and push blood sugars to dangerously high levels.
Let’s review the basic points of keeping your blood sugar at a healthy level, which is a fasting blood sugar between 70-85mg/dL:

- **Cut refined sugars out of your diet entirely.**

- **Limit your intake of so-called “natural” sweeteners,** which, while possibly more nutritious than refined white sugar, still pose a significant threat to the health and stability of your blood sugar.

- **Limit your intake of dried fruit.**

- **Get your sweet taste from sweet vegetables.** Vegetables, unlike fruits, contain sweetness in the form of glucose rather than fructose. Glucose is a more readily available form of energy for the body than fructose which, when taken with other foods, will store in the liver as fat for later use.

- **Increase greens** in your diet. Aim for your plate to be 50% green veggies at each meal.

- **Look at your plate: aside from the greens, is there a good quality protein source, a whole grain, and a little bit of healthy fat?** A small amount of lacto-fermented foods on your plate at one meal a day, such as miso, sauerkraut, tempeh, natto, pickled vegetables, or raw cheese may be a good addition to help beneficial intestinal bacteria proliferate in the gut.

- **Balance the 6 tastes on your plate:** By having a little bit of each taste on your plate (sweet can be in the form of a whole grain like rice, which becomes sweet when you chew it well, or a sweet vegetable like squash or sweet potato), you are much more likely to leave the table satisfied and not craving.

- **Test your blood sugar regularly** at home with a blood sugar monitoring calculator. Use the glucose ranges on page 12 as a reference for your results.

- **Based on the results of your blood sugar test,** you can decide whether it’s permissible for you to indulge once in a while – or whether it’s best to stay away from the sweet stuff (even dark chocolate) – entirely.
After doing extensive research on pre-diabetes and decades’ worth of working with patients struggling – sometimes unknowingly – with their blood sugar, here are my final thoughts about how to get our taste buds back on track:

In a way, many Americans are legal drug addicts!
All of the above activate dopamine receptors in the brain – dopamine is the neurotransmitter behind this phenomenon that we call “addiction.” The dopamine activation in turn creates a neural pathway in the brain that convinces us, "I am not satisfied until I have that coffee, tea, chocolate, sex, money, fame, the list goes on. On a more fundamental level, it may be our cultural addiction to sweets and stimulants that drives an incessant need to consume that is shared by many Americans.

Many of us are addicted to one activity or another, one food or another. Unless we have those things in our day, we do not feel content. We are often only content when consuming, achieving or stimulating ourselves. As I mentioned, this is an addiction to dopamine, the "I gotta have it" hormone, which literally delivers the "high" that we seem to be perpetually seeking.

Perhaps it is this addiction that is underlying our cultural depression, anxiety and discontentment.

According to Ayurveda, a great effort is made to still and silence the mind while our culture seems set on over-stimulating it. Yoga has replaced meditation, shopping has replaced sitting on the back porch, and soccer tournaments have replaced family picnics. Somewhere in the past 20 years, we have lost the desire and know-how to still the mind and simply be at peace.

Chocolate of any kind is a stimulant. Yes, it has medicinal properties (barring the sugar), but if chocolate or the next exotic stimulant becomes our only avenue to contentment - then I think we have lost something most precious to the human mind - its own silence!

Perhaps experiencing our true nature of joy, love, and being happy for no reason, starts with experiencing the silence within. To begin to move towards that, step one would be to acknowledge and break the insidious addictions that keep us from being present with ourselves.
References

9. Archives Internal Medicine. 2006
Also by John Douillard

Books

Body, Mind and Sport
*The Mind-Body Guide to Lifelong Health, Fitness, and Your Personal Best*

Perfect Health for Kids
*10 Ayurvedic Health Secrets Every Parent Must Know*

The 3-Season Diet
*Eat the Way Nature Intended: Lose Weight, Beat Food Cravings, Get Fit*

The Encyclopedia of Ayurvedic Massage

The Yoga Body Diet
*Slim and Sexy in 4 Weeks Without the Stress*

DVDs

Ayurveda for Detox

Ayurveda for Stress Relief

Ayurveda for Weight Loss

eCourses

28-Day Ayurveda Lifestyle Challenge
*Change Your Daily Routine, Change Your Life*

John Douillard’s Ayurvedic Pulse Reading Course
*A Technique for Self-Discovery*

Available at LifeSpa.com
John Douillard, DC is the former Director of Player Development for the New Jersey Nets and has written and produced 18 health and fitness books, CD's and DVD's, and 2 eCourses. He has also published over 250 health videos and articles, all of which are available at lifespa.com. He is the creator of the LifeSpa Ayurvedic Skincare and Herbal Line and currently directs LifeSpa, an Ayurvedic Retreat Center, which was voted the Holistic Spa of the Year 2013 by the Green Spa Network. Dr. Douillard offers consultations (in person, phone and Skype) and personalized Panchakarma Detox Retreats. He lives with his wife and six children in Boulder, CO.